

## General

### Title

Maternal and newborn care: proportion of women with a cesarean section performed from greater than or equal to 37 to less than 39 weeks' gestation among low-risk women having a repeat cesarean section at term.

### Source(s)

Maternal newborn dashboard - key performance indicator criterion reference guide, version 1.3. Ontario (Canada): Better Outcomes Registry and Network (BORN) Ontario; 2014 Jul 2. 12 p.

## Measure Domain

### Primary Measure Domain

Clinical Quality Measures: Process

### Secondary Measure Domain

Does not apply to this measure

## Brief Abstract

### Description

This measure is used to assess the proportion of women with a cesarean section performed from greater than or equal to 37 to less than 39 weeks' gestation among low-risk women having a repeat cesarean section at term.

### Rationale

Despite clinical practice guidelines and an ever-growing body of evidence that support the delay of elective repeat cesarean section (ERCS) to 39 weeks gestation, recent data for the province of Ontario indicates that between 30% and 60% of ERCS is performed prior to this (Sprague, 2010).

Early-term birth by ERCS (less than 39 weeks) is associated with increased morbidity in the neonate, most notably respiratory distress syndrome (RDS) and transient tachypnea of the newborn (TTN) in addition to higher rates of admission to neonatal intensive care units (NICU). Multiple studies have

produced data that, even when adjusted for possible confounding factors, have consistently shown these outcomes to be inversely related to gestational age (GA) at delivery (Royal Australian and New Zealand College of Obstetricians and Gynaecologists [RANZCOG], 2009).

As such, many obstetric organizations around the world now advocate that uncomplicated ERCS not be performed before 39 weeks gestation (American College of Obstetricians and Gynecologists [ACOG], 2007; RANZCOG, 2009; Royal College of Obstetricians and Gynaecologists [RCOG], 2007).

## Evidence for Rationale

American College of Obstetricians and Gynecologists. ACOG Committee Opinion No. 394, December 2007. Cesarean delivery on maternal request. *Obstet Gynecol.* 2007 Dec;110(6):1501. [PubMed](#)

Khangura S, Grimshaw J, Moher D. What is known about the timing of elective repeat cesarean section?. Ottawa (Canada): Ottawa Hospital Research Institute; 2010 May. 11 p.

Personal correspondence with Dr. Ann Sprague. 2010 Feb 25.

Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG). Timing of elective caesarean section at term (C-Obs 23). Victoria (Australia): The Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG); 2009 Jul.

Royal College of Obstetricians and Gynaecologists (RCOG). Birth after previous caesarean birth. London (UK): Royal College of Obstetricians and Gynaecologists (RCOG); 2007 Feb. 17 p. (Green-top guideline; no. 45). [116 references]

## Primary Health Components

Elective repeat cesarean section (ERCS); timing

## Denominator Description

Total number of low-risk women with a repeat cesarean section performed at term (greater than or equal to 37 weeks' gestation) (see the related "Denominator Inclusions/Exclusions" field)

## Numerator Description

Number of low-risk women with a repeat cesarean section performed from greater than or equal to 37 to less than 39 weeks' gestation (see the related "Numerator Inclusions/Exclusions" field)

## Evidence Supporting the Measure

### Type of Evidence Supporting the Criterion of Quality for the Measure

A clinical practice guideline or other peer-reviewed synthesis of the clinical research evidence

A formal consensus procedure, involving experts in relevant clinical, methodological, public health and organizational sciences

A systematic review of the clinical research literature (e.g., Cochrane Review)

One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

## Additional Information Supporting Need for the Measure

- Early-term elective repeat cesarean section (ERCS) (37 to 38 weeks) has consistently been associated with increased risks to the neonate, including respiratory morbidity, neonatal intensive care unit (NICU) admission and lengthier hospital stays when compared with ERCS at 39 to 40 weeks.
- Empirical studies, guideline-producing bodies and expert consensus unanimously agree that delaying ERCS to greater than or equal to 39 weeks significantly reduces these risks.
- Studies addressing the timing of ERCS at term are limited and generally of lower quality; most studies examining ERCS compare maternal and neonatal outcomes between vaginal birth after cesarean (VBAC) and ERCS.
- Current rates of ERCS less than 39 weeks in Ontario exceed what is expected would be necessary and reasons for this are not well defined.
- Ensuring adherence to guidelines dictating the timing of uncomplicated, term ERCS may pose specific challenges to clinicians, health policy and decision makers.

Refer to *What is Known About the Timing of Elective Repeat Cesarean Section?* for a summary of the evidence around early-term ERCS to help inform evidence-based guidelines and advance practice in the province of Ontario.

## Evidence for Additional Information Supporting Need for the Measure

Khangura S, Grimshaw J, Moher D. What is known about the timing of elective repeat cesarean section?. Ottawa (Canada): Ottawa Hospital Research Institute; 2010 May. 11 p.

## Extent of Measure Testing

To validate the seven potential indicators as being appropriate for use throughout the province, the authors first extracted data from the BORN Information System (BIS) for fiscal year 2009 to 2010 to assess historical and current performance on these indicators across Ontario's 14 health regions (Local Health Integration Networks). Simultaneously, evidence summaries on each of the potential indicators were developed in collaboration with the Knowledge to Action Research Centre at the Ottawa Hospital Research Institute (Thielman et al., 2011; Konnyu, Grimshaw, & Moher, "What are the drivers," 2010; Konnyu, Grimshaw, & Moher, "What are the maternal," 2011; Konnyu, Grimshaw, & Moher, "What is known," 2011; Khangura, Grimshaw, & Moher, 2010). This group, which has expertise in the review and synthesis of literature to support evidence-informed health care decision-making, assisted with determining the level of scientific evidence to support each indicator. For example, the evidence summary on early term repeat Caesarean section (i.e., before 39 weeks' gestation) in a defined population determined that as a result of this practice there were indeed objective risks to babies that could be reduced by delaying delivery.

Following review of the data and evidence summaries, the committee removed one indicator and refined some of the others, leaving six. In five of the six, the potential for improvement in rates was obvious. The remaining indicator (rate of screening for group B streptococcus) is currently satisfactory throughout all health regions of the province; however, the committee felt it was important at the outset to have the dashboard reflect not only performance areas requiring improvement, but also areas in which performance was good.

## Evidence for Extent of Measure Testing

Khangura S, Grimshaw J, Moher D. What is known about the timing of elective repeat cesarean section?. Ottawa (Canada): Ottawa Hospital Research Institute; 2010 May. 11 p.

Konnyu K, Grimshaw J, Moher D. What are the drivers of in-hospital formula supplementation in healthy term neonates and what is the effectiveness of hospital-based interventions designed to reduce formula supplementation?. Ottawa (Canada): Ottawa Hospital Research Institute; 2010 Oct. 13 p. (KTA Evidence Summary; no. 8).

Konnyu K, Grimshaw J, Moher D. What are the maternal and newborn outcomes associated with episiotomy during spontaneous vaginal delivery?. Ottawa (Canada): Ottawa Hospital Research Institute; 2011 Jul. 11 p. (KTA Evidence Summary; no. 13).

Konnyu K, Grimshaw J, Moher D. What is known about the maternal and newborn risks of elective induction of women at term?. Ottawa (Canada): Ottawa Hospital Research Institute; 2011 Mar. 13 p. (KTA Evidence Summary; no. 10).

Sprague AE, Dunn SI, Fell DB, Harrold J, Walker MC, Kelly S, Smith GN. Measuring quality in maternal-newborn care: developing a clinical dashboard. J Obstet Gynaecol Can. 2013 Jan;35(1):29-38. [PubMed](#)

Thielman J, Konnyu K, Grimshaw J, Moher D. What is the evidence supporting universal versus risk-based maternal screening to prevent group B streptococcal infection in newborns?. Ottawa (Canada): Ottawa Hospital Research Institute; 2011 Oct. 11 p. (KTA Evidence Summary; no. 14).

## State of Use of the Measure

### State of Use

Current routine use

### Current Use

not defined yet

## Application of the Measure in its Current Use

### Measurement Setting

Hospital Inpatient

### Professionals Involved in Delivery of Health Services

not defined yet

### Least Aggregated Level of Services Delivery Addressed

Single Health Care Delivery or Public Health Organizations

## Statement of Acceptable Minimum Sample Size

Unspecified

## Target Population Age

Unspecified

## Target Population Gender

Female (only)

# National Strategy for Quality Improvement in Health Care

## National Quality Strategy Aim

Better Care

## National Quality Strategy Priority

Health and Well-being of Communities

Prevention and Treatment of Leading Causes of Mortality

# Institute of Medicine (IOM) National Health Care Quality Report Categories

## IOM Care Need

Staying Healthy

## IOM Domain

Effectiveness

# Data Collection for the Measure

## Case Finding Period

Three-month reporting period

## Denominator Sampling Frame

Patients associated with provider

# Denominator (Index) Event or Characteristic

Clinical Condition

Institutionalization

Therapeutic Intervention

## Denominator Time Window

not defined yet

## Denominator Inclusions/Exclusions

### Inclusions

Total number of low-risk women with a repeat cesarean section performed at term (greater than or equal to 37 weeks' gestation)

Note:

Repeat cesarean section in low-risk women is defined as a cesarean section performed prior to the onset of labour, among women with a singleton live birth, with a history of one or more previous cesarean sections and with no fetal or maternal health conditions (except cleft lip and/or palate, craniosynostosis, hyperthyroidism, hypothyroidism, chromosome rearrangement [balanced], chronic anemia, limb reduction defects, autism, developmental delay, Fragile X, hearing disorder, learning disabilities, vision disorder, epilepsy/seizures, asthma, and recurrent spontaneous abortion) or obstetrical complications.

The key performance indicators (KPIs) criteria are defined by the pertinent BORN Information System (BIS) data elements that are used to calculate the rates and proportion values for the respective Maternal Newborn Dashboard KPI. As well, pick-list values for each data element, when selected, will result in a patient record to be either included or excluded for a given KPI based on the KPI criterion definition.

Refer to the original measure documentation for a complete list of KPI criteria.

### Exclusions

Women with indication for cesarean section are excluded, other than women with the following indications: fetal malposition/malpresentation, previous cesarean section, accommodates care provider/organization, or maternal request.

## Exclusions/Exceptions

not defined yet

## Numerator Inclusions/Exclusions

### Inclusions

Number of low-risk women with a repeat cesarean section performed from greater than or equal to 37 to less than 39 weeks' gestation (37 weeks + 0 days to 38 weeks + 6 days gestation)

Note: Refer to the original measure documentation for a complete list of key performance indicator (KPI) criteria.

### Exclusions

Unspecified

## Numerator Search Strategy

Institutionalization

## Data Source

Registry data

## Type of Health State

Does not apply to this measure

## Instruments Used and/or Associated with the Measure

BORN Information System (BIS) Maternal Newborn Dashboard (MND)

## Computation of the Measure

### Measure Specifies Disaggregation

Does not apply to this measure

### Scoring

Rate/Proportion

### Interpretation of Score

Desired value is a lower score

### Allowance for Patient or Population Factors

not defined yet

### Standard of Comparison

not defined yet

### Prescriptive Standard

Target:	Less than 11%
Warning:	11% to 15%
Alert:	Greater than 15%

### Evidence for Prescriptive Standard

Sprague AE, Dunn SI, Fell DB, Harrold J, Walker MC, Kelly S, Smith GN. Measuring quality in maternal-newborn care: developing a clinical dashboard. J Obstet Gynaecol Can. 2013 Jan;35(1):29-38. [PubMed](#)

## Identifying Information

## Original Title

KPI 4 - Proportion of women with a cesarean section performed from  $\geq 37$  to  $< 39$  weeks' gestation among low-risk women having a repeat cesarean section at term.

## Measure Collection Name

Maternal-Newborn Care Performance Indicators

## Submitter

Better Outcomes Registry and Network (BORN) Ontario - State/Local Government Agency [Non-U.S.]

## Developer

Better Outcomes Registry and Network (BORN) Ontario - State/Local Government Agency [Non-U.S.]

## Funding Source(s)

Better Outcomes Registry and Network (BORN) Ontario is funded by the Ontario Ministry of Health and Long Term Care.

## Composition of the Group that Developed the Measure

Ann E. Sprague, RN, PhD (Better Outcomes Registry & Network [BORN] Ontario, Ottawa ON); Sandra I. Dunn, RN, PhD (BORN Ontario, Ottawa ON); Deshayne B. Fell, MSc (BORN Ontario, Ottawa ON); JoAnn Harrold, MD, FRCPC (Department of Pediatrics, Children's Hospital of Eastern Ontario, Ottawa ON); Mark C. Walker, MD, FRCSC (BORN Ontario, Ottawa ON; Departments of Obstetrics and Gynecology, and Epidemiology, University of Ottawa, Ottawa ON; Department of Obstetrics and Gynecology, The Ottawa Hospital and the Ottawa Hospital Research Institute, Ottawa ON); Sherrie Kelly, MSc (BORN Ontario, Ottawa ON); Graeme N. Smith, MD, PhD, FRCSC (Department of Obstetrics and Gynecology, Kingston General Hospital, Queen's University, Kingston ON), and clinical experts from the BORN Maternal Newborn Outcomes Committee – Dashboard Subcommittee

## Financial Disclosures/Other Potential Conflicts of Interest

None declared.

## Adaptation

This measure was not adapted from another source.

## Date of Most Current Version in NQMC

2014 Jul

## Measure Maintenance

Unspecified



## Date of Next Anticipated Revision

Unspecified

## Measure Status

This is the current release of the measure.

The measure developer reaffirmed the currency of this measure in April 2016.

## Measure Availability

Source not available electronically.

For more information, contact BORN Ontario at 401 Smyth Road, Ottawa, ON, K1H 8L1; Phone: 613-737-7600 x 6022; Web site: [www.bornontario.ca/en/](http://www.bornontario.ca/en/) ; E-mail: [info@bornontario.ca](mailto:info@bornontario.ca).

## NQMC Status

This NQMC summary was completed by ECRI Institute on January 26, 2015. The information was verified by the measure developer on April 21, 2015.

The information was reaffirmed by the measure developer on April 4, 2016.

## Copyright Statement

No copyright restrictions apply.

## Production

### Source(s)

Maternal newborn dashboard - key performance indicator criterion reference guide, version 1.3. Ontario (Canada): Better Outcomes Registry and Network (BORN) Ontario; 2014 Jul 2. 12 p.

## Disclaimer

### NQMC Disclaimer

The National Quality Measures Clearinghouse (NQMC) does not develop, produce, approve, or endorse the measures represented on this site.

All measures summarized by NQMC and hosted on our site are produced under the auspices of medical specialty societies, relevant professional associations, public and private organizations, other government agencies, health care organizations or plans, individuals, and similar entities.

Measures represented on the NQMC Web site are submitted by measure developers, and are screened solely to determine that they meet the [NQMC Inclusion Criteria](#).

NQMC, AHRQ, and its contractor ECRI Institute make no warranties concerning the content or its reliability and/or validity of the quality measures and related materials represented on this site. Moreover, the views and opinions of developers or authors of measures represented on this site do not necessarily state or reflect those of NQMC, AHRQ, or its contractor, ECRI Institute, and inclusion or hosting of measures in NQMC may not be used for advertising or commercial endorsement purposes. Readers with questions regarding measure content are directed to contact the measure developer.